

291

6.5

HW Key

p 318

15-25 odd not 21, 45a

15. $x^2 - 16x + 4 = 0$

a. $D = \frac{(-16)^2 - 4(1)(4)}{240}$

b. $D > 0$

2 TR irrational

c. $\frac{16 \pm \sqrt{240}}{2}$

$\frac{16 \pm 4\sqrt{15}}{2} = \boxed{8 \pm 2\sqrt{15}}$

17. $x^2 - x + 6 = 0$

a. $D = \frac{(-1)^2 - 4(1)(6)}{-23}$

b. $D < 0$

2 imaginary roots

c. $x = \frac{1 \pm \sqrt{-23}}{2}$

$\boxed{x = \frac{1 \pm i\sqrt{23}}{2}}$

19. $-3x^2 - 5x + 2 = 0$

a. $D = 25 - 4(-3)(2) = 49$

b. $D > 0$

2 TR, rational

c. $x = \frac{5 \pm \sqrt{49}}{2(-3)} = \frac{5 \pm 7}{-6}$

$\boxed{\{-2, +\frac{1}{3}\}}$

23. $4x^2 + 20x + 25 = 0$

a. $D = 20^2 - 4(4)(25) = 0$

b. $D = 0$

1 TR rational double root

c. $x = \frac{-20 \pm \sqrt{0}}{2(4)} = \frac{-20}{8} = \boxed{\frac{-5}{2}}$

25. $6x^2 + 3x + 6 = 0$

a. $D = 3^2 - 4(6)(6)$
 $= -135$

b. $D < 0$

2 imaginary roots

c. $x = \frac{-3 \pm \sqrt{-135}}{2(6)} = \frac{-3 \pm 3i\sqrt{15}}{12}$
 $\boxed{\frac{-1 \pm i\sqrt{15}}{4}}$

45. $x^2 - kx + 9 = 0$

a. $D = (-k)^2 - 4(1)(9)$
 $k^2 - 36$

a. $k^2 - 36 = 0$

$k^2 = 36$

$k = \pm 6$